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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,051	12/06/2001	Stephen Mark Keating	450110-03718	7122

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EXAMINER

BHATNAGAR, ANAND P

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,051

Applicant(s)

KEATING ET AL.

Examiner

Anand Bhatnagar

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-18 is/are pending in the application.
- 4a) Of the above claim(s) 2, 3, 6, and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7-9, and 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/29/05 has been entered.

Response to Arguments

2. Applicant has canceled claims 4 and 5. Applicant has amended independent claims 1, 12, and 18. Currently claims 1-3 and 6-18 are pending.
3. Applicant in essence argues, regarding claims 1, 12, and 18, see remarks pages 10-13 paper filed on 11/29/05 that the prior art of Manjunath (U.S. patent 6,332,030) does not teach "introducing data into only the high horizontal, low vertical frequencies sub-band and the low horizontal, high vertical frequencies sub-band" which is a newly added limitation in each of these claims. Examiner refers to the rejection below.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 12, and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, similarly for claims 12 and 18, applicant has added a new limitation of "wherein said data is formed into said sub-bands representing said data in a scan direction, with an effect that said data is embedded in only a first low vertical, high horizontal spatial frequencies sub-band of the discrete wavelet transform, and only a second high vertical, low horizontal spatial frequencies sub-band of the discrete wavelet transform, said data being embedded into to said first and second sub-bands in a vertical scan direction and a horizontal scan direction respectively, symbols of said data being added to the wavelet coefficients, said scan direction being in the same direction in the sub-band as the direction of the low spatial frequencies of the image. Though, this newly added limitation is enabled by the specifications of applicant's instant invention, on pages 2-11, with the first method of transformation of the image (to the frequency domain) and embedding which is "a transform domain form, said transform processor generating a transform domain form of said image, said data being combined with said image by said combining processor in said transform domain, and said transform processor generating a spatial domain representation of said combined image and data," but there is **no support** for

this newly added limitation with the second method of transformation (to the spatial domain) and embedding which is "a spatial domain form of said image, said transform processor generating a spatial domain representation of said transform domain representation of said data, said data being combined with said image by said combining processor in said spatial domain." Applicant describes these two different transformations and embedding processes as alternative embodiments (page 11 lines 6-10 of applicant's instant invention). Nowhere in the specifications of applicant's instant invention is described **both** transformation and embedding processes together with the newly added limitation in these claims as stated in these claims. Further, the second transformation is performed in spatial domain transformation while the newly added limitation is directed to embedding the data in a specific way in the frequency sub-bands which does not apply to the second transformation and embedding method since this is performed in a spatial domain and **not** in a frequency domain and no frequency sub-bands are generated. These claims, as amended results in new subject matter since there is no support in the specifications for the two transformation and embedding methods combined with the newly added limitation. Further, these claims are improper since there are two different embodiments incorporated into the same claim(s). Examiner will address these claims as best understood and since there are two embodiments in these claims and only one embodiment will be addressed, since the claims are in alternative form, with the corresponding limitations and dependent claims. The

limitations and claims corresponding to the transformation **not** addressed are considered to be withdrawn.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 7, 9, and 11-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Manjunath et al. (U.S. patent 6,332,030 B1).

Regarding claims 1, 12, and 18: Manjunath et al. discloses an image processing apparatus operable to embed data into an image (fig. 6 and col. 1 lines 38-40), said apparatus comprising:

a combining processor operable to introduce said data into a transform domain representation providing a plurality of sub-bands divided by spatial frequency components (fig. 1, fig. 15 element 42, and col. 6 lines 35-38 and 52-56, wherein the encoder, read as the combining processor, embeds a watermark into the image that has been transformed into transform data, which is a plurality

of sub-bands, by a DWT), and, in combination with a transform processor (fig. 1 and 15 wherein the DWT, is read as the transform processor, is combined with the encoder, which is read as the combining processor), to combine said data with said image (col. 6 lines 35-38 and 52-56), in one of

a transform domain form, said transform processor generating a transform domain form of said image said data being combined with said image by said combining processor in said transform domain and generating a spatial domain representation of said combined image and data (1st method of transformation and embedding which is **not** addressed), or

a spatial domain form of said image, said transform processor generating a spatial domain representation of said transform domain data, said data being combined with said image by said combining processor in said spatial domain (Manjunath; fig. 15 element 40, col. 15 lines 5-16 and 55-67, and col. 16 lines 1-11, wherein the host image is transformed by a DCT, i.e. spatial transformation, then combined with a watermark/signature, and then the DCT transformed image with the combined watermark is processed by a IDCT to inversely transform the combination back to the original spatial form)

wherein said data is formed into said sub-bands representing said data in a scan direction, with an effect that said data is embedded in only a first low vertical, high horizontal spatial frequencies sub-band of the discrete wavelet transform, and only a second high vertical, low horizontal spatial frequencies sub-band of the discrete wavelet transform, said data being embedded into to

said first and second sub-bands in a vertical scan direction and a horizontal scan direction respectively, symbols of said data being added to the wavelet coefficients, said scan direction being in the same direction in the sub-band as the direction of the low spatial frequencies of the image (not addressed since this corresponds to the first transformation and embedding method only).

Regarding claim 2: An image processing apparatus wherein said direction of said low spatial frequencies of said at least one sub-band and said another direction of said high spatial frequencies in said at least one sub-band are orthogonal with respect to each other (not addressed since this corresponds to the first transformation and embedding method only).

Regarding claim 3: An image processing apparatus comprising:

a modulator operable to modulate a Pseudo Random Symbol Stream each of the data symbols to be embedded, wherein said combining processor is operable to introduce said modulated Pseudo Random Symbol Stream in said scan direction into said transform domain representation (not addressed since this corresponds to the first transformation and embedding method only).

Regarding claim 6: An image processing apparatus wherein said data to be embedded in said image is distributed equally between said first and second sub-bands (not addressed since this corresponds to the first transformation and embedding method only).

Regarding claim 7: An image processing apparatus wherein said data to be embedded is a Universal Material Identifier (UMID) (col. 3 lines 25-29,

wherein a signature is embedded into the image. A signature is a unique code/data and this is read as the "UMID").

Regarding claim 9: An image processing apparatus wherein said transform processor is operable to transform said transform domain representation of said data to be embedded into the spatial domain, said combining processor being operable to receive said image in the spatial domain and to combine said image with said spatial domain representation of said embedded data (Manjunath; fig. 15 element 40, col. 15 lines 5-16 and 55-67, and col. 16 lines 1-11, wherein the host image is transformed by a DCT, i.e. spatial transformation, then combined with a watermark/signature, and then the DCT transformed image with the combined watermark is processed by a IDCT to inversely transform the combination back to the original spatial form).

Regarding claim 10: This claim is rejected as such they belong to the alternative form in claim 1 wherein the transform data is first transformed into a transform domain for embedding then transformed back to spatial domain.

Regarding claim 11: An image processing apparatus wherein said image is a video image (col. 1 lines 38-40).

Regarding claim 13: A signal representing an image in which data has been embedded by an image processing apparatus according to any Claim 1 (fig. 15 the watermarked image. This watermarked image is read as the signal wherein the data is embedded according to the process of claim 1).

Regarding claim 14: A computer program providing computer executable instructions, which when loaded on to a data processor configures said data processor to operate as an image processing apparatus as claimed in Claim 1 (Manjunath et al.; abstract and col. 3 lines 52-67, wherein digital data is embedded into a digital signal, i.e. performed by a computer and wherein there is a computer product on a computer medium with instructions carrying out the process).

Regarding claim 15: A computer program having computer executable instructions, which when loaded on to a data processor causes the data processor to perform the method according to Claim 12 (Manjunath et al.; abstract and col. 3 lines 52-67, wherein digital data is embedded into a digital signal, i.e. performed by a computer and wherein there is a computer product on a computer medium with instructions carrying out the process).

Regarding claim 16: A computer program product having a computer readable medium having recorded thereon information signals representative of the computer program claimed in Claim 14 (Manjunath et al.; abstract and col. 3 lines 52-67, wherein digital data is embedded into a digital signal, i.e. performed by a computer and wherein there is a computer product on a computer medium with instructions carrying out the process).

Regarding claim 17: A computer program product having a computer readable medium having recorded thereon information signals representative of the computer program claimed in Claim 15 (Manjunath et al.; abstract and col. 3

lines 52-67, wherein digital data is embedded into a digital signal, i.e. performed by a computer and wherein there is a computer product on a computer medium with instructions carrying out the process).

B.) Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Manjunath et al. (U.S. patent 6,332,030 B1) and Cox et al. (U.S. patent 5,915,027).

Regarding claim 8: An image processing apparatus comprising an error correction encoder operable to encode said data to form said data to be embedded.

Manjunath et al. discloses a system wherein a signature is embedded into a image. Manjunath et al. does not teach to use an error correction encoder to form the data for embedding. Cox et al. teaches to use an error correction encoder to form the data to embed (Cox. Et al.; fig. 2 element 20 and col. 5 lines 9-14, wherein the watermark is processed by the error correction encoder to process it for data embedding). It would have been obvious to one skilled in the art to combine the teaching of Cox et al. to that of Manjunath et al. because they are analogous in watermarking. One in the art would have been motivated to incorporate the teaching of Cox et al. to the system of Manjunath et al. to achieve significant savings in computation (Cox et al.; col. 1 lines 13-15).

Conclusion

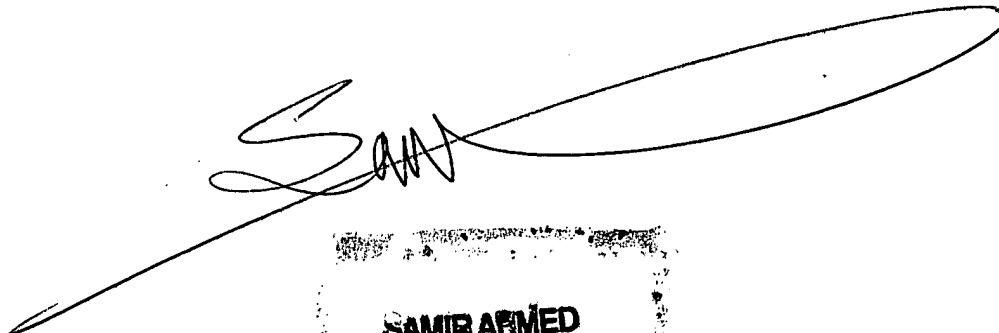
6. This is a RCE of applicant's earlier Application No. 10/006,051. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anand Bhatnagar whose telephone number is (571) 272-7416, whose acting supervisor is Jingge Wu whose number is (571) 272-7429, Central fax is 571-273-8300, and Tech center 2600 customer service office number is 703-306-0377.



**SAMIR AHMED
PRIMARY EXAMINER**

AB

Anand Bhatnagar

Art Unit 2623

January 31, 2006